

## **REMARKS**

Claims 1-4, 6-9, 11-23, 25-28, 30-36 and 81-86 remain pending in the present application. Claims 5, 10, 24, 29, 37-80 and 87 have been canceled. Claim 1 includes the limitations of now canceled claim 10; Claim 12 has been presented in independent form and now includes the limitations of claim 1; claim 14 has been presented in independent form and now includes the limitations of claim 1; independent claim 20 has been amended to include the limitations of now canceled dependent claim 29; claim 31 has been presented in independent form and now includes the limitations of claim 20; claim 81 has been presented in independent form and now includes the limitations of claim 1; claim 82 has been presented in independent form and now includes the limitations of claim 20; and independent claim 83, as amended, includes the limitations of now canceled claim 87. It is noted that the Examiner has made the rejections of the claims final. Accordingly, the amendments raise no new issues, add no new subject matter and require no additional searching. Even if the Examiner does not believe that the amendments place the Application in condition for allowance, it is respectfully requested that the amendments be entered, as they would simply issues for purposes of appeal.

### **The § 102 Rejections**

The Examiner rejected Claims 1-4, 6-9, 11-13, 16-23, 25-28, 30-36 and 81-86 under 35 USC 102(e) as being anticipated by U.S. Patent no. 6,805,139 issued to Savas et al (hereinafter the '139 patent). Applicants respectfully traverse at least for the reasons discussed hereinafter. It is noted that the claims will be discussed in view of the amendments above.

Initially considering claim 1, it is noted that this claim has been amended to include the limitations of now canceled claim 10. Accordingly, amended claim 1 now requires that the hydrocarbon gas in a range of from approximately 15% to 85% of an overall mixture with the oxygen gas to generate the plasma. With respect to these limitations, the rejections cite col. 21, lns. 16-19 of the '139 patent. Applicants respectfully traverse, as will be discussed immediately hereinafter.

Applicants respectfully point out that claim 1, as amended, is directed to the removal of an implant crust that is produced from a photoresist layer by the introduction of implanted dopants in an ion implantation process. In contrast, beginning at col. 14, ln. 36, the subject matter of the '139 patent is directed to protecting low-K materials during photoresist removal. The '139 patent continues this discussion through column 21. It should be appreciated that low-K materials are used in an electrical interconnect structure which overlies the device structure. Protecting the dielectric constant, K, provides with a device having lower capacitance in the electrical interconnect and, therefore, allows for faster device operation. Ion implantation is not used in the manufacture of the electrical interconnect since the interconnect does not include active, ion implanted dopant

regions that are characteristic of the underlying active device structure. Therefore, no implant crust is present when the need arises to protect the low-K material. Accordingly, Applicants do not believe that there is any reasonable relationship between the removal of implant crust, as recited by amended claim 1, and the need to protect the low-K material of the electrical interconnect, as is discussed in col. 21 of the '139 patent. Accordingly, it is respectfully submitted that any reliance on this section of the '139 patent is not reasonable with respect to the limitations of amended claim 1. Accordingly, for at least this reason, it is respectfully submitted that claim 1 is allowable over the art of record, when viewed in any reasonable light.

Claims 2-4, 6-9, 11, 13 and 16-19 each depend either directly or indirectly from and therefore include the limitations of amended claim 1. Accordingly, it is respectfully submitted that each of these claims is also patentable over the art of record for at least the reasons set forth above with respect to claim 1, as amended. Further, each of these dependent claims places additional limitations on their parent and intermediate claims which, when considered in light of amended claim 1, further distinguish the claimed invention from the art of record.

Claim 12 has been amended into independent form to include the limitations of claim 1. Original claim 12, however, recites that the plasma is generated using 75% methane and 25% oxygen to form an overall gas mixture. With regard to these limitations, the rejections again refer to col. 21, lns. 16-19 of the '139 patent. Applicants respectfully disagree. Again, col. 21 is directed to protection of low-K materials, as opposed to the removal of ion implant crust. As discussed above, it is respectfully submitted that any reliance on this section of the '139 patent is not reasonable with respect to the limitations of amended claim 12. Accordingly, for at least this reason, it is respectfully submitted that claim 12, as amended, is allowable over the art of record, when viewed in any reasonable light.

Claim 20, as amended, is an independent claim which reflects the limitations of amended claim 1, but in method form. In particular, amended claim 20 includes the limitations of now canceled claim 29. As discussed above, it is considered that the arguments presented above, in favor of the patentability of amended claim 1 over the art of record, equally favor the patentability of amended claim 20. Hence, for at least these reasons, allowance of claim 20, as amended, is respectfully requested.

Claims 21-23, 25-28, 30 and 32-36 each depend either directly or indirectly from and therefore include the limitations of amended claim 20. Accordingly, it is respectfully submitted that each of these claims is also patentable over the art of record for at least the reasons set forth above with respect to claim 20. Further, each of these dependent claims places additional limitations on their parent and intermediate claims which, when considered in light of claim 20, further distinguish the claimed invention from the art of record.

Claim 31 has been amended into independent form to include the limitations of claim 20. Original claim 31, however, recites that the plasma is generated using 75% methane and 25% oxygen to form an overall gas mixture. With regard to these limitations, the rejections again refer to col. 21, Ins. 16-19 of the '139 patent. Applicants respectfully disagree. As discussed above, col. 21 is directed to protection of low-K materials, as opposed to the removal of ion implant crust. Accordingly, it is respectfully submitted that any reliance on this section of the '139 patent is not reasonable with respect to the limitations of amended claim 31. Accordingly, for at least this reason, it is respectfully submitted that claim 31, as amended, is allowable over the art of record, when viewed in any reasonable light.

Claim 81 has been amended into independent form to include the limitations of claim 1. Original claim 81, however, recites that the plasma is generated using 50% methane and 50% oxygen to form an overall gas mixture. With regard to these limitations, the rejections again refer to col. 21, Ins. 16-19 of the '139 patent. Applicants respectfully disagree. As discussed above, col. 21 is directed to protection of low-K materials, as opposed to the removal of ion implant crust. Accordingly, it is respectfully submitted that any reliance on this section of the '139 patent is not reasonable with respect to the limitations of amended claim 81. Accordingly, for at least this reason, it is respectfully submitted that claim 81, as amended, is allowable over the art of record, when viewed in any reasonable light.

Claim 82 has been amended into independent form to include the limitations of claim 20. Original claim 82, however, recites that the plasma is generated using 50% methane and 50% oxygen to form an overall gas mixture. With regard to these limitations, the rejections again refer to col. 21, Ins. 16-19 of the '139 patent. Applicants respectfully disagree. Again, col. 21 is directed to protection of low-K materials, as opposed to the removal of ion implant crust. Accordingly, it is respectfully submitted that any reliance on this section of the '139 patent is not reasonable with respect to the limitations of amended claim 82. Accordingly, for at least this reason, it is respectfully submitted that claim 82, as amended, is allowable over the art of record, when viewed in any reasonable light.

Claim 83 has been amended into independent form to include the limitations of claim now canceled claim 87. Original claim 87, however, recites that the plasma is generated using 50% methane and 50% oxygen to form an overall gas mixture. With regard to these limitations, the rejections again refer to col. 21, Ins. 16-19 of the '139 patent. Applicants respectfully disagree. Again, col. 21 is directed to protection of low-K materials, as opposed to the removal of ion implant crust. Accordingly, it is respectfully submitted that any reliance on this section of the '139 patent is not reasonable with respect to the limitations of amended claim 83. Accordingly, for at least this reason, it is respectfully submitted that claim 83, as amended, is allowable over the art of record, when viewed in any reasonable light.

amended claim 83. Accordingly, it is respectfully submitted that each of these claims is also patentable over the art of record for at least the reasons set forth above with respect to claim 83. Further, each of these dependent claims places additional limitations on their parent and intermediate claims which, when considered in light of claim 83, further distinguish the claimed invention from the art of record.

**The § 103 Rejections**

The Examiner rejected claim 14 under 35 USC § 103(a) as being unpatentable over the '139 patent. Applicants respectfully traverse. Claim 14 has been presented in independent form to include the limitations of claim 1. It is noted that the '139 patent qualifies as prior art under 35 U.S.C. § 102 (e). In this regard, the present Application, Serial no. 10/665,267, and U.S. Patent no. 6,805,139 (the '139 patent) were, at the time that the invention of the 10/665,267 Application was made, owned by Mattson Technology, Inc. Accordingly, it is respectfully submitted that the '139 patent is disqualified as prior art under 35 U.S.C. § 103 (c) and that, for at least this reason, claim 14 is allowable.

The Examiner rejected claim 15 under 35 USC § 103(a) as being unpatentable over the '139 patent in view of U.S. Patent no. 5,770,100, issued to Fukuyama et al (hereinafter the '100 patent). Applicants respectfully traverse. Claim 15 has been presented in independent form to include the limitations of claim 1. As discussed above, it is believed that the '139 patent is disqualified as prior art per 35 U.S.C. § 103 (c). Hence, it is believed that the combination of the '139 patent and the '100 patent is not reasonable and that, for at least this reason, amended claim 15 is allowable.

Applicants believe that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. If the Examiner has any questions concerning this case, the Examiner is respectfully requested to contact Mike Pritzkau at 303-410-9254.

Respectfully submitted,  
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